3.8 GRAZING MANAGEMENT

This section describes the affected environment as they apply to grazing management.

3.8.1 Affected Environment

The following sections describe the current grazing management; this represents the baseline for the assessment of impacts and environmental consequences.

3.8.1.1 Region of Influence

The region of influence for grazing management assessed in this section includes grazing allotments in the Big Sandy Valley potentially impacted by the proposed power plant and associated facilities and allotments affected by the natural gas pipeline or proposed OPGW installation.

Power Plant Site and Ancillary Facilities

Construction of the power plant, well field, and agricultural land is proposed on private land within the Gray Wash Allotment. The Groom Peak Allotment is located west of the Gray Wash Allotment and the Greenwood Peak Community Allotment is located south of the Gray Wash Allotment (Figure 3.8-1). Caithness has acquired some or all of the grazing privileges for these allotments through purchase of water rights that function as base property.

Grazing allotments in the region of influence that are present along the gas pipeline corridors and the installation of the OPGW are the Big Sandy, Cane Springs Wash, Diamond Joe, Francis Creek, Gray Wash, Groom Peak, Hibernia Peak B, Hot Springs, Little Cane, Sandy, and Wikieup allotments (refer to Figure 3.8-1).

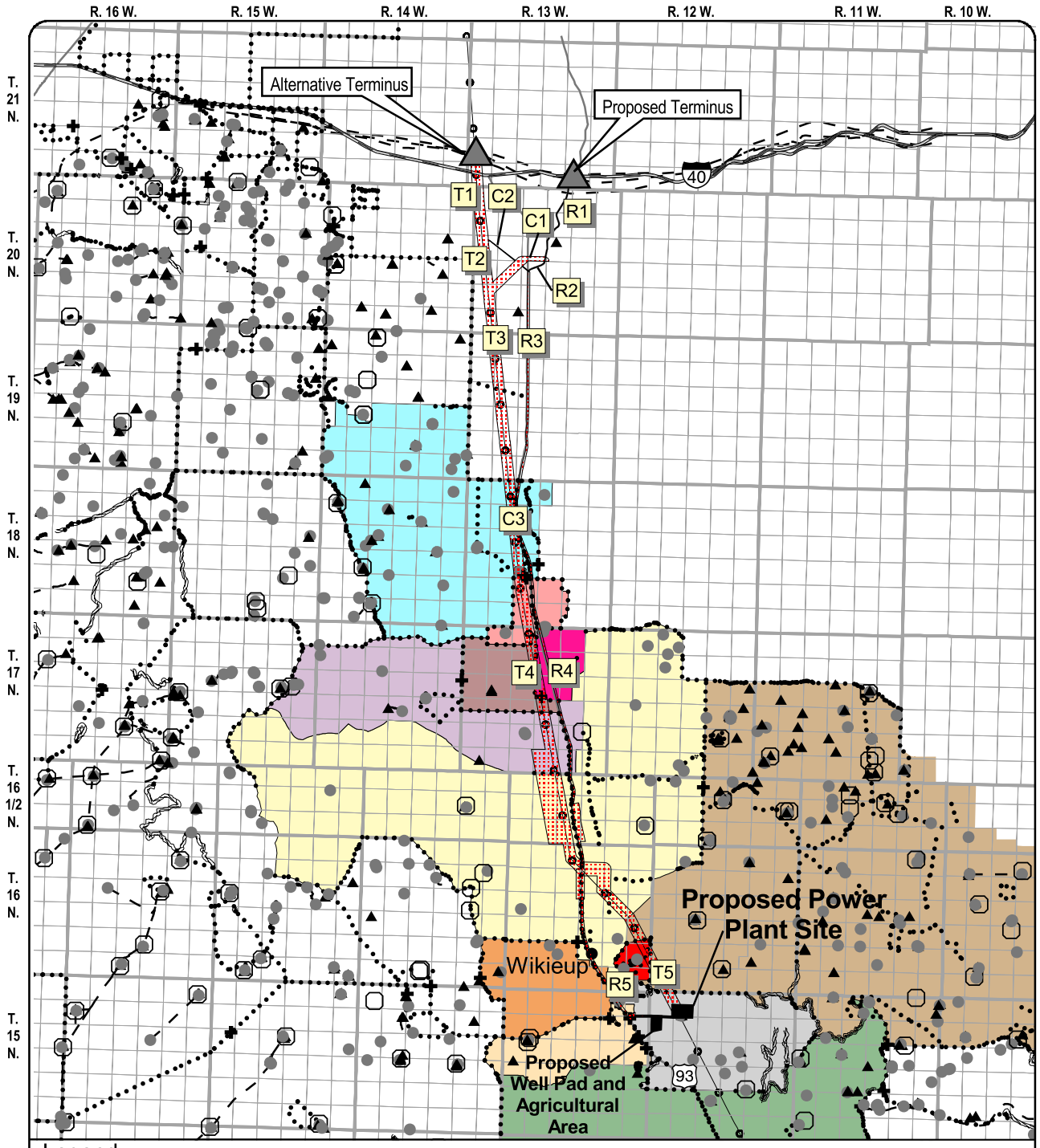
3.8.1.2 Existing Conditions

The BLM classifies grazing allotments into different management categories depending on factors such as range condition, opportunity for positive economic return, and whether present management appears to be satisfactory.

All grazing allotments considered in this section currently are categorized as either Improve Management or Custodial Selective Management. The Improve Management category involves managing vegetation resources to improve currently unsatisfactory conditions. Custodial Management is a limited form of management where the potential for resource production is low and there is minimal potential for a positive return on public investment in range improvement facilities. Under Custodial Management, current resource conditions are maintained and investment in range improvements is limited.

Grazing preference is given to parties that own or control a "base property." In the BLM Kingman Field Office management area, the base property criterion is based either on ownership of land or livestock water rights. The base property for all allotments discussed here is water. Caithness owns the base water for the entire Groom Peak and Gray Wash allotments and the majority of the base water for the Greenwood Peak Community Allotment and therefore has grazing privileges on public lands within these allotments (Table 3.8-1). Caithness intends to transfer its grazing privileges to MCEDA via a base water lease. MCEDA is expected to use all Animal Unit Months (AUMs) permitted to Caithness. AUMs are units that measure the forage used by livestock, where one AUM is the forage required to feed one cow and calf for one month.

The Greenwood Peak Community Allotment extends from the Aquarius Mountains to the east, across the Big Sandy River and US 93, to the Hualapai Mountains to the west (refer to Figure 3.8-1). Land ownership includes public, Caithness/MCEDA, and other private land. Public land managed by the BLM constitutes 82 percent of the total land within this allotment. Pastures are not used in this allotment, and no fence separates this allotment from the Groom Peak Allotment to the north. Although the right-



Legend

Resource Components
- Cattleguard
- Corral
- Livestock Water Source
- Water Development
- Cliff Boundary
- Fences
- Pipeline

Project Components
- Pipeline Corridor Segments
- Proposed Pipeline Corridor - R1, C1, T3, C3, T4, R5
- Alternative R Corridor - R1, R2, R3, C3, R4, R5
- Alternative T Corridor - T1, T2, T3, C3, T4, T5
- Proposed Plant Facilities

BLM Allotments
- Big Sandy
- Cane Springs Wash
- Diamond Joe
- Francis Creek
- Gray Wash
- Greenwood Peak
- Groom Peak
- Hibernia Peak Unit B
- Hot Springs
- Little Cane
- Sandy
- Wikieup
- Community

General Reference
- Existing Pipelines
- Mead-Liberty/Mead-Phoenix Transmission Lines
- Stream/River
- Interstate
- U.S. Route

BLM Grazing Allotment and Rangeland Improvements

Big Sandy Energy Project EIS

N

0 5

Scale in Miles

Universal Transverse Mercator Projection
1927 North American Datum
Zone 12

x:/bigsandy/projects/grazing.apr

Figure 3.8-1

TABLE 3.8-1
GRAZING MANAGEMENT DATA

Allotment[1]		Selective Management Category[2]	AUMs		Public Acres	Total Acres	Acres/AUM
No.	Name		Grazing Use	Suspended Use			
0038	Gray Wash	I	373	0	10,599	17,471	46.8
0040	Greenwood Peak Community	I	2,080	0	39,817	48,173	23.2
0041	Groom Peak	I	265	0	6,049	7,090	26.8

Source: BLM 2000
[1] BLM grazing allotments where Caithness has grazing privileges and that could be impacted during construction or operation of the proposed Project.
[2] I = Improve Management, C = Custodial Management
AUM = Animal Unit Month

of-way for US 93 is fenced, livestock can readily move under the highway through culverts and under bridges.

Other than the Big Sandy River, perennial water sources for livestock are primarily located in the portion of the allotment east of US 93. Livestock present in the western portion of the allotment obtain water primarily at the Big Sandy River. Water also is available perennially at springs located in the Hualapai Mountains, but it is most abundant during wet or cool weather.

The Groom Peak Allotment extends from the Big Sandy River west into the Hualapai Mountains (refer to Figure 3.8-1). Land ownership in the Groom Peak Allotment includes public, Caithness, and other private land. Public land managed by BLM constitutes 85 percent of the allotment. Livestock water sources include the Big Sandy River and springs in the western portion of this allotment. Two defunct windmills are located in the western portion of the allotment.

The Gray Wash Allotment extends from the Aquarius Mountains in the east to the eastern edge of the Groom Peak Allotment. Land ownership includes public, Caithness, and other private land. Public land managed by BLM constitutes 61 percent of this allotment. Livestock water sources for this allotment include two springs, two water troughs fed by the Phelps Dodge water line, and a windmill. Another defunct windmill is located on this allotment.

The Greenwood Peak Community, Groom Peak, and Gray Wash allotments are in the Improve Management category due in part to unsatisfactory riparian and upland ecological conditions. No grazing system (other than year-long use) traditionally has been used on these allotments.

The proposed and alternative gas pipeline corridors traverse the Big Sandy, Cane Springs Wash, Diamond Joe, Gray Wash, Groom Peak, Hibernia Peak B, Hot Springs, Little Cane, Sandy and Wikieup allotments. The acreage of public land controlled by the BLM ranges from 335 to 77,948 acres (Table 3.8-2). Five of the eight allotments are in the Custodial Management category and the other three are in the Improve Management category.

TABLE 3.8-2
GRAZING MANAGEMENT DATA

Allotment[1]		Selective Management Category[2]	AUMs[3]		No. Public Acres	Pipeline Alternative[4]
No.	Name		Grazing Use	Suspended Use		
0008	Big Sandy	I	6,084	1,901	64,913	P, T, R
0016	Cane Springs Wash	C	120	69	2,310	P, T, R
0028	Diamond Joe	I	1,404	917	16,223	P, T, R
0035	Francis Creek	I	9,750	0	77,948	T
0038	Gray Wash	I	373	0	10,599	P, T, R
0041	Groom Peak	I	265	0	6,049	P
0083	Hibernia Peak B	C	120	0	335	P, T, R
0046	Hot Springs	C	52	0	1,057	T
0087	Little Cane	C	372	0	5,542	P, T, R
0064	Sandy	C	60	138	1,524	P, T, R
0076	Wikieup	I	684	0	8,446	P, R

[1] BLM grazing allotments that could be impacted during construction of the natural gas pipeline
[2] I = Improve Management, C = Custodial Management
[3] AUM = Animal Unit Months
[4] P = Proposed Corridor, T = Transmission Line Corridor, R = Road Corridor
Source: BLM 2000

3.8.2 Environmental Consequences

3.8.2.1 Identification of Issues

Two main issues were identified during meetings with resource managers, consultants, Caithness, and MCEDA. Potential impacts from groundwater withdrawn for the operation of the Proposed Action must be analyzed to determine impacts on surface water availability to livestock. Impacts from construction of the natural gas pipeline should be analyzed to determine any impacts on range improvement facilities (e.g., fencing, water pipelines, stock tanks, and water troughs). Additionally, livestock production for the allotment where the power plant is proposed should be analyzed to determine impacts on the carrying capacity of this allotment. Impacts on grazing management also should be analyzed to determine if rangeland conditions could be impacted by this Project.

3.8.2.2 Significance Criteria

The effects of the Proposed Action and alternatives would be considered significant if the following were to occur:

- reduction in existing water availability for livestock use occurs that cannot be mitigated or compensated for
- impact on existing range improvement facilities occurs that cannot be mitigated or compensated for
- reduction in livestock production on land or grazing rights not owned by Caithness occurs that cannot be mitigated or compensated for
- decrease in the quality of rangeland conditions occurs that cannot be mitigated or compensated for

3.8.2.3 Impact Assessment Methods

Assessing the impacts on grazing management involved determining the level of impact on

water resources, range improvement facilities, livestock production, or range condition during construction and operation of the Proposed Action. The level of impact was then compared to planned mitigation measures identified by Caithness. If the application of mitigation measures identified did not reduce impacts to levels below those described in the significance criteria, then impacts were assessed as significant.

3.8.2.4 Actions Included in the Proposed Action to Reduce or Prevent Impacts

The Proposed Action includes the following measures to reduce and prevent environmental impacts on grazing; details of the measures can be found in Sections 2.2.8.6 and 2.2.8.7:

- Pre-construction surveys would identify range improvements and an action plan to reduce temporary impacts would be developed.
- The integrity of all fences, water pipelines, and other existing range improvements would be maintained during construction of the proposed power plant, gas pipeline, and associated facilities; any improvements that are removed or disturbed would be replaced or repaired.
- Temporary gates would be used where openings are required in fences; cattle guards or gates would be installed where permanent access is required.
- Any reduction in water supply for grazing from Cofer Hot Spring would be replaced by an existing shallow well water supply.

3.8.2.5 Impact Assessment

Proposed Action

Power Plant Site and Ancillary Facilities

Pumping water to supply the proposed power plant is not expected to impact water flow in the Big Sandy River (refer to Section 3.5). Cofer Hot Spring, located approximately 2.5 miles northwest of the proposed power plant site, is expected to have reduced water flow resulting from the pumping of water for the proposed power plant (refer to Section 3.4). This spring has provided water to livestock that graze public lands in the Hot Springs Allotment. The Proposed Action includes the use of existing shallow wells near Cofer Hot Spring to replace water for grazing (refer to Section 2.2.8.6). Based on these actions, there would be no significant impact from reduction of water availability for livestock.

Caithness would install a cattle guard along the main access road to the proposed power plant site at the fence that separates the Gray Wash Allotment from the Groom Peak Allotment. This cattle guard would maintain separation of cattle grazing the Gray Wash Allotment from cattle grazing the Groom Peak or Greenwood Peak Community allotments; therefore, there would not be impacts on these allotments.

Land available for grazing within the Gray Wash Allotment would be reduced by construction of the Proposed Action. The total acreage that is expected to be permanently removed from grazing is 181 acres. On the Gray Wash Allotment 46.8 acres of land provides one AUM (Table 3.8-1). Removal of 181 acres from grazing equates to the loss of about 3.9 AUMs or approximately one cow and calf for four months. This small reduction (about 1 percent) in forage availability from construction of the proposed power plant and associated facilities would take place almost entirely on private lands owned by Caithness within the Gray Wash Allotment, and would not be significant.

Communication Facilities

Impacts associated with installation of the OPGW would be short term and limited to the already disturbed areas in the Mead-Phoenix Project 500-kV transmission line right-of-way. Impacts on grazing would be short term, and all range improvements would be maintained.

Therefore, impacts associated with the OPGW would be minimal and not significant. The microwave dish installation on existing structures would have no impact on grazing.

Proposed Gas Pipeline Corridor

The proposed gas pipeline corridor crosses portions of the Big Sandy, Cane Springs Wash, Gray Wash, Diamond Joe, Groom Peak, Hibernia Peak B, Little Cane, Sandy and Wikieup allotments. The function of any range improvements encountered anywhere within the proposed gas pipeline corridor would be maintained. A list of existing range improvements located along the proposed and alternative gas pipeline corridors is provided in Table 3.8-3.

Impacts on grazing management are expected to be similar for all segments within the proposed gas pipeline corridor; therefore, individual links are not addressed separately.

Livestock production on allotments crossed by the proposed gas pipeline corridor is not expected to be impacted during construction of the pipeline. The proposed gas pipeline corridor is primarily east of the existing ADOT right-of-way for US 93, or along transmission lines. Pipeline construction could impact a total of 399 acres within this corridor; however, 351 acres would be reclaimed and forage production is expected to be restored on these lands. The permanent disturbance of 48 acres would not result in a reduction of livestock production and would not be significant.

Construction and operation of the Proposed Action are not expected to have significant impacts on the range condition of BLM grazing allotments. Temporary land disturbance at the proposed power plant site (10 acres) and within the proposed gas pipeline corridor (351 acres) would cover a relatively small area and would neither degrade nor improve range conditions significantly.

Alternative R Gas Pipeline Corridor

The Alternative R gas pipeline corridor crosses portions of the Big Sandy, Cane Springs Wash, Diamond Joe, Gray Wash, Hibernia Peak B, Little Cane, Sandy and Wikieup allotments (refer to Table 3.8-2). Impacts on range improvements for this alternative are not expected to be greatly different than for the proposed gas pipeline corridor. A list of existing range improvements located along alternative corridors for the gas pipeline is provided in Table 3.8-3. Impacts on grazing management are expected to be similar for all segments within the Alternative R gas pipeline corridor; therefore, individual corridor segments are not addressed separately.

Construction activities would have minimal effects on livestock production. The relatively small areas of range that would be impacted during construction would be reclaimed. Long-term effects on livestock production under this alternative are not expected to be different than for the Proposed Action since forage production is expected to be restored along this corridor and would not be significant.

Construction within the Alternative R gas pipeline corridor is not expected to have significant impacts on the range condition of BLM grazing allotments. Total land disturbance would be about 386 acres, but 339 acres would be reclaimed. Temporary impacts would neither degrade nor improve range conditions significantly.

TABLE 3.8-3
GRAZING IMPROVEMENTS POTENTIALLY IMPACTED BY CONSTRUCTION OF THE PROPOSED POWER PLANT AND ASSOCIATED FACILITIES INCLUDING ALTERNATIVE GAS PIPELINE CORRIDORS

Allotment	Range Improvement	Location
Gray Wash	Fence	North and west boundaries of allotment
Francis Creek	Fence	South boundary of allotment (T15N, R12W, Sec 30; T15N, R13W, Sec 35 and 36)
	Cofer-Green-Nogales Fence (No. 0189)	West boundary of allotment along alternative pipeline route (T15N, R13W, Sec 13, 23 and 24)
Sandy	Arizona-Copperville Cattle Guard #1 (No. 0384)	Mine Road access near southern border of allotment (T17N, R13W, Sec 15)
	Fence	South and west boundaries of allotment
Cane Springs Wash	Trout Creek Corrals (No. 0361)	Near southern boundary of allotment (T18N, R13W, Sec 34)
	Lakin and Peter – Gist Fence (No. 0649)	Central portion of allotment along proposed and alternative pipelines (T18N, R13W, Sec 28, 29, 32 and 33)
	Fence	South and north boundaries of allotment
Hot Springs	Fence	East and north boundaries of allotment along alternative pipeline
Diamond Joe	Fence	South and north boundaries of allotment along proposed and alternative pipeline routes
Big Sandy	Duncan and Boevers – Stephens Fence #2 (No. 0585)	Southern portion of allotment along the alternate pipeline (T16N, R13W, Sec 14)
	Cornwall South Line Fence (No. 0256)	Southern portion of allotment along the alternate pipeline route (T16N, R13W, Sec 11 and 12)
	Duncan and Boevers East Boundary Fence (No. 0150)	Near southern boundary of allotment along proposed pipeline (T16N, R13W, Sec 21 and 22)
	Byner Cattle Fence	Near southern boundary of allotment along proposed pipeline (T16N, R13W, Sec 22 and 23)
Little Cane	Cornwall – Crabtree Fence	East boundary of allotment along alternative pipeline route (T17N, R13W, Sec 3, 4, 9, 10, 15 and 16)
Cane Springs Ranch	Fence	South and north boundary of allotment

Alternative T Gas Pipeline Corridor

The Alternative T gas pipeline corridor crosses portions of the Big Sandy, Cane Springs Wash, Diamond Joe, Francis Creek, Gray Wash, Hibernia Peak B, Hot Springs, Little Cane, and Sandy allotments (refer to Table 3.8-2). Impacts on range improvements along this alternative corridor are not expected to be greatly different than for the Proposed Action. A list of existing range improvements located within alternative gas pipeline corridors is provided in Table 3.8-3. Impacts on grazing management are expected to be similar for all segments within the corridor; therefore, individual corridor segments are not addressed separately.

Livestock production on allotments crossed by the Alternative T gas pipeline corridor is not expected to be impacted during construction of the pipeline. The relatively small acreages of range that would be impacted during construction would be reclaimed. Livestock production under this alternative is not expected to be different than for the Proposed Action because forage production is expected to be restored within this corridor.

Construction of the pipeline within the Alternative T gas pipeline corridor is not expected to have significant impacts on the range condition of BLM grazing allotments. Total land disturbance within this corridor would be about 411 acres, but 366 acres would be reclaimed. Temporary impacts would neither degrade nor improve range conditions significantly.

No-Action Alternative

Under the No-Action Alternative, no impacts on grazing resources are expected. The Project would not be constructed and associated facilities including the natural gas pipeline would not be constructed. The groundwater production and monitoring wells and associated access roads completed on private land that were used to identify and test the lower aquifer would remain.

3.8.2.6 Mitigation and Residual Impacts

No significant impacts would result from the implementation of the Proposed Action with the actions incorporated to reduce or prevent impacts. As a result, no additional measures to mitigate significant impacts have been identified for grazing management and there would be no residual significant impacts.

3.9 RECREATION, WILDERNESS, AND VISUAL RESOURCES

This section identifies and describes the affected environment and environmental consequences as they apply to recreation, wilderness, and visual resources.

3.9.1 Recreation and Wilderness

The following sections describe the current recreation and wilderness environment; this represents the baseline for assessment of impacts and environmental consequences.

3.9.1.1 Affected Environment

Region of Influence

The region of influence for the inventory and assessment of potential significant impacts to recreation resources is the area within a 20-mile radius of Wikieup. For wilderness areas the region of influence is the area within 25 miles of the proposed power plant site. This would account for a substantial amount of recreation and wilderness resources, which are situated in all directions around the Wikieup area. Two special cases were included in the analysis to address potential recreation (visibility) impacts even though they were considered outside the region of influence. The special cases were the Grand Canyon National Park (approximately 80 miles north of the proposed power plant site) and Sycamore Canyon Wilderness (approximately 95 miles northeast of the proposed power plant site).

The evaluation of impacts on BLM-designated "suitable" wild and scenic rivers is not included in this Draft EIS since it was determined that the proposed Project would not affect resources within those sections of the Big Sandy River, Burro Creek, and Santa Maria River designated by BLM as "suitable" wild and scenic rivers. Therefore, the Project would not change the status as "suitable" for designation as a wild and scenic river. Refer to Section 3.5 for the analysis of potential effects on surface water including these rivers.

Existing Conditions

The region of influence offers diverse landscapes, views, historic resources, wildlife, and wilderness areas (three within the region of influence and nine total under the jurisdiction of the BLM Kingman Field Office). These elements combine to offer a wide range of recreation opportunities including camping, hiking, horseback riding, rockhounding, off-highway vehicle use, photography, and hunting. Visitors to the area can choose to take part in active or passive recreation opportunities,